University News

MONDAY, OCTOBER 31, 1988 Rs. 2.50

P.C. Alexander, Governor of Tamil Nadu, speaking at the 131st annual convocation of the University of Madras. Seate on his left are Shri B. Shankaranand, Union Minister of Law & Justice and Water Resources, who delivered the Convocation Address, and Dr. A. Gnanam, Vice-Chancellor of the University.

Sanjay Gandhi Post Graduate Institute of Medical Sciences

POST BOX NO. 375, RAE BARELI ROAD
LUCKNOW-226 001 (U.P.)

Advertisement No. 44/88 **Closing Date : November 15, 1988**

SENIOR RESIDENTS

Applications are invited for selection of Senior Residents in the following specialities :

Speciality	D.M./M.Ch.	Vacancies Hospital Service	Total
Neurosurgery	1	2	3
Urology	1	2	3
Gastroenterology (Medical)	1	1	2
Gastroenterology (Surgical)	—	2	2
Endocrinology (Medical)	1	—	1
Nephrology	1	1	2
Medical Genetics	1	1	2
Immunology	1	1	2
Radiology	—	5	5
Pathology	—	6	6
Cardiovascular Surgery	—	3	3
Cardiology	—	5	5
Nuclear Medicine	—	4	4
Neurology	—	3	3
Anaesthesiology	—	4	4
	7	40	47

Note : The number of vacancies for Hospital Services indicated above may increase or decrease at the time of recruitment.

Qualification :

(a) The applicants should possess M.D./M.S. or equivalent recognised Post-graduate qualification in the parent discipline.

(b) The candidates must have registered with Central/State Medical Council.

Upper Age Limit :

Maximum age as on 1-1-1989, 30 years. Relaxable by 5 years for SC/ST candidates.

Age for sponsored candidates can be relaxed.

Reservation :

Reservation for SC/ST candidates exists as per rules. In case candidates belonging to reserved categories are not available vacant seats will be filled from general list.

General Information :

1. Sponsored candidates will also have to appear to Selection Test.
2. No candidate can apply for more than one speciality.
3. The recruitment to the posts will be made on All India basis.
4. The emoluments payable will be in the scale of Rs. 3000—3100-3200 fixed including PGA & NPA.
5. The appointments on these posts will be made on year to year basis for a team not exceeding 3 years.
6. Candidates will be enrolled in D.M./M.Ch. courses subject to clearance by Medical Council of India strictly on merit determined on the basis of selection test which will consist of a written examination followed by practical/clinical test and interview.
7. The test will be held on December 18th, 1988 (Sunday) at S.G.P.G.I., Lucknow.
8. Other qualified candidates on merit list will be offered appointments as Senior Residents in the relevant specialities for delivery of hospital services.
9. The merit list will be valid for a period of one year.
10. Candidates are requested to send applications on plain paper latest by **15th November, 1988** stating their date of birth, qualifications with year of passing the examination and marks, experience, names of two referees along with a crossed Bank Draft of Rs. 200/- (two hundred only) payable to "Sanjay Gandhi Post Graduate Institute of Medical Sciences" towards examination fees.
11. Candidates in employment must get their applications duly forwarded.

Prof. B.B. Sethi
DIRECTOR

UNIVERSITY NEWS

VOL. XXVI OCTOBER 31
No. 44 1988
Price Rs. 2.50

A Weekly Chronicle of Higher Education published by the Association of Indian Universities

IN THIS ISSUE

The Gurukula System of Education

Educational Ideas of Jose Marti, Jose Vasconcelos and E. Claparede 5

Convocation

University of Madras, Madras 9

News from Universities

Education for Peace 11

Illinois-Baroda Faculty Exchange Project 13

Sri Sathya Sai Centre for Computer Sciences 13

Orientation Programme on Autonomy 13

IGNOU Plans Science Courses 14

Technology Data Bank 14

Science and Spirituality Contest 14

News from UGC

INSAT-1B Programme 15

News from Abroad

New Zealand Proposes Graduate Tax 16

Current Documentation in Education 18

Theses of the Month 20

Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

The Gurukula System of Education

G.B.K. Hooja*

Mention the word Gurukula and you conjure up the picture of a forest hermitage by the side of a running brook, flanked by high hills, with deer frisking about and lion cubs roaming side by side with cows. It is presided over by an ancient-looking sage with matted hair and a flowing silvery beard, sitting cross-legged on a tiger skin spread on a raised platform, under a banyan tree, expounding the mysteries of the sacred Vedas to a class of brahamcharins, who are simply clad with yellow dhotis round their waists and three cords thrown across their shoulders signifying the protection which they seek to evoke from the three Vedas. These brahamcharins have shaven heads with tufts of hair in the centre and carry wooden staffs for their protection and kamandals for their bhiksha. They walk bare-footed though occasionally for luxury they may wear wooden sandals.

Is it not a charming picture, which may be the delight of caricaturists and cartoonists in modern times ? It would certainly appear to be anachronistic to the modern sophisticated westernised oriental gentleman.

But it surely sums up the aims, ideals and the methodology of the ancient system of education as it prevailed in India in Vedic and post-vedic times.

Firstly, take the locale of the school. Generally, these institutions were situated in forests, which implied intimate contact with nature and tended to develop a sense of harmony with natural surroundings and helped in the inculcation of spiritual values. It developed a sense of intimate relationship between man, beast, birds, trees, mountains and brooks.

Secondly, it emphasised the intimate relationship between the teacher and the pupil. This was, in fact, the essence of the Gurukula system of education. It was teacher-centred and not school-centred as the modern system of education has become. As the child became of school-going age he was required to undergo the ceremony of **Upanayan** which literally means going near (the teacher). He was to be transferred from the house of his parents to the house of his teacher who was supposed to symbolically bear him in his "womb" for three days before he entered upon his formal education. The student was required to become the **anteh-vassi** (resident) of the Gurukula (family of the teacher). He was required to give filial obedience and show due respect and reverence to the teacher. On his part, the teacher was required to bestow paternal affection on the pupil. Aware of his high responsibilities, he was required to so conduct himself as to be able to develop the latent faculties of the student, not only by word of mouth but also by his daily **aacharan** (conduct).

As Vinobaji has often said the word for teacher in ancient literature was **Acharya** and not **Pracharya** as the modern professor would like to call himself. According to the Nirukta, **aacharam graahtiyati aacharyah**: one who trains the pupil in good conduct is the teacher. In ancient

---

**Former Vice-Chancellor, Gurukula Kangri Vishwavidyalaya,*
A-15 A, Vijay Path, Tilak Nagar, Jaipur-302004.

times the teacher did not merely profess (to know), but he literally practised what he preached and thereby helped to develop the personality of his pupil. In this system of education, a teacher who appears at stated hours to lecture to a class of students whom he knows by roll numbers only and is not readily available at all times to answer their questions, quell doubts and render advice regarding all the problems under the sun becomes anomalous. Given such a teacher, how can a student go astray ? How can there be a generation gap ?

The third characteristic of this system of education was its austerity and simplicity of life. Away from the distracting influences of the city life, far from its maddening crowds, its din and dust, the pupil was required to lead a simple and disciplined life. Shave a man's head and he automatically becomes humbler in the presence of his viewers. Believe it or not, it is a veritable psychological phenomenon. Dandyism quits, leading to an internal transformation. The student was required to do all the household chores for his teacher and for the ashrama, e.g., to fetch water from the brook, to cut wood, to beg food, to look after the house, to plant and water trees, to keep the premises clean and tidy, etc. He was supposed to rise with the break of the day and had a systematic and well-laid out schedule of duties to be performed during the course of the day. Emphasis was laid on the development of qualities of hardihood and endurance, on **tapas**. In the Brahamcharya Sukta of the Atharva Veda the word **tapas** occurs 15 times in 26 verses. It is also noteworthy that there was no distinction between the sons of the rich and the poor. They were students of the same **guru** and all stood on equal footing. Thus the Gurukula system of education inculcated on the one hand a spirit of discipline while on the other hand it isolated the students from the distinctions based on the caste, creed or birth. On graduation, of course, the students were classified according to their abilities and character and entered upon the appropriate class in accordance with the **Varnashrama vyavastha**. But as long as they remained at the school there was no such distinction.

The question arises whether we can adopt this way of life in modern times ? Surely while we may not insist on shaving of heads, there can be no two opinions about subjecting the students to a Spartan and disciplined way of life. There would also be general agreement that the students may be encouraged to look after their own hostels, premises, kitchens, gardens, and even school buildings. In this way they will tend to develop a sense of involvement in their immediate environment. This will in turn lead to the fostering of a sense of commitment to societal needs which is unfortunately so glaringly lacking in modern individualistic societies. Exactly something similar was recommended by Rousseau centuries later for the education of a youngman. I quote :

> "Emile must also learn a trade less for the learning of it than for overcoming the prejudices which otherwise he would acquire, If instead of making a child stick to his books, I employ him in a workshop, his hand works for the development of his mind. While he fancies himself a workman, he is becoming a philosopher. No matter which trade is adopted, Emile must work like a peasant and think like a philosopher, if he is not to be as idle as savage.
>
> The great secret of education is to use exercise of mind and body as relaxation to one another. Let all the lessons of young people take the form of doing rather than of talking; let them learn nothing from books which they can learn from experience".

We may here dwell for a moment on the significance of the three cords and the staff with which the student was invested at the time of the **Upanayan** ceremony. As stated above the three cords signified firstly that the student was enveloped and protected by the three Vedas (the sacred books of knowledge). They also signified that the student would endeavour to develop his faculties to fight the dark forces of **Avidya** (ignorance), **Anyaya** (injustice) and **Abhava** (want). At the same time, they were required to remind him of the three sacred debts he owned to his parents, teachers and ancestors.

Similarly, the staff also had an equally important significance. The staff is a traveller's symbol. Set on the road to knowledge, a student is required to be self-confident and self-reliant. He is also supposed to be vigilant and act as a watchman against the evil forces of ignorance, superstition, injustice, tyranny, disease and deprivation.

In short, the initiation ceremony was intended to set the student on the path of social commitment and to ingrain in his character the virtues of courage, self-confidence and self-reliance. These were to serve as his shields during the ups and downs of life's tempestuous journey.

It would be appropriate to mention two more characteristics of the Gurukula system of education, which have also considerable relevance in modern times. It was a normal feature in these schools to employ senior students to assist the teacher in the task of instruction and management. These monitors, as they may be called, discharged the role of elder brothers in the family. On the one hand it relieved the teacher of routine work, on the other, it trained these advanced scholars in the art of teaching. Well might we require our graduates and senior scholars to undertake the work of teaching their less fortunate brothers and sisters in our crusade against illiteracy, ignorance, superstition and obscurantism. The practice of ragging and bullying the younger students by the senior ones was unknown in India. It is purely an imported practice and may well be curbed without any compunction. The elder boys and girls have a duty towards the younger ones and the younger boys and girls have always shown a marked deference to their elders in India.

Yet another feature of the Gurukula system of education which deserves notice is that it did not prescribe any periodical or annual examination. As stated by A.S. Alteker in his 'Education in Ancient India', a new lesson was given only when the teacher was satisfied that the old one had been mastered. The end of the educational course was not marked by any lengthy or exhaustive examination. No degrees or diplomas were given. Education was broad-based, intended to develop character and personality, to inculcate civic virtues, and to turn out citizens well-qualified to follow their professions and discharge their duties. It emphasised the value of self-imposed discipline and thus produced a galaxy of scholars, thinkers and administrators who made significant contribution to the advancement of knowledge in the varied spheres of Philosophy, Logic, Mathematics, Astronomy, Chemistry, Medicine and the general well-being of the people.

At the turn of the century, Swami Shardhananda (then known as Mahatma Munshiram), the follower of Swami Dayananda was undergoing a psychological crisis. Although, the D.A.V. college had been established at Lahore in 1886 to meet the challenges emanating from the British government, Christian missionaries and English educationists and had achieved commendable results in fighting the forces of orthodoxy, superstition and dogmatism, yet to the visionary in Mahatma Munshiram, it was not doing all that was required. Being of a militant temperament and inspired by Dayananda's vision of a religious, modernised, committed Indian, he embarked upon the establishment of the Gurukula on the banks of the river Ganges when an opportunity offered itself with the grant of a generous land donation in village Kangri by Thakur Aman Singh of Bijnor. The Tribune of Lahore for 18.1.1900 carried the following statement of the aims and objects of the Gurukula :

(a) Physical improvement, by enforcing **brahmcharaya** (celibacy), active habits and well-regulated life.

(b) Intellectual improvement by instructing the students in our **Satya Shastras** (true scriptures), sciences and philosophy, and English language and literature.

(c) Religious and ethical improvement, by teaching the Theistic religion of the Holy Vedas, the Ethics of ancient **rishis**, from Brahama to Jaimini and of other devotees at the temple of Truth.

(d) Social and **Samajic** improvement, by placing before the students elevating ideals, such as showing due respect to age and learning, altruistic notions of **Paropakara** (charity or benevolence) and self-abnegation and the regulation of conduct accordingly. It also aims at the improvement of national character, by placing the local or national ideas on a sounder basis, by giving to their education the colouring of Indian tradition and the vitality inborn of the genius of the people.

A.N. Whitehead also advocates something similar to this when he says that :

> "The primary reason for the existence of University is not to be found either in the mere knowledge conveyed to the students or merely in the opportunities for research afforded to the members

---

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much *open to you* as to our contributors. Your communications *should, however, be brief and to the point.*

---

of the Faculty. The justification of a University is that it preserves the connection between knowledge and the zest of life by uniting the young and the old in the imaginative consideration of learning. The University imparts information, but it imparts it imaginatively. A University which fails in this respect has no reason for existence. Youth is imaginative and if the imagination be strengthened by discipline, the energy of imagination can in a great measure be preserved through life.

Thus the proper function of a University is the imaginative acquisition of knowledge. A University is imaginative or it is nothing, at least nothing useful.

Imagination is a contagious disease. It can only be communicated by a faculty whose members themselves wear their learning with imagination."

It may be mentioned here that while the aim of Gurukula was to raise bands of youngmen inspired by ancient lore, and well-versed in modern sciences, the medium of instruction was laid down to be the national language Hindi, and to this end of producing scientific books in Hindi, the early teachers of the Gurukula, under the inspiring leadership of Mahatma Munshiram bended their energies with remarkable zeal and achieved notable success.

During the last 85 years of its existence the Gurukula has passed through many vicissitudes but if the success of an experiment has to be judged by its end products, the Gurukula can justifiably boast of having produced an illustrious galaxy of educationists, scholars, historians, journalists, parliamentarians, public leaders, medical practitioners, social workers and freedom fighters. If education is described as a preparation for life, the Gurukula experiment is entitled to a seat of respect in the councils of modern educationalists. By laying emphasis on personal attention to students, monitorial system, simple living and high thinking, intellectual enquiry, a happy blend of vocational and spiritual education, the Gurukula system may well claim to be capable of yielding excellent results in modern times.

India is in ferment today, and there are many controversies raging in the country with regard to the most desirable form of educational system but there shall be no doubt that as a result of the self-confidence and maturity which the nation has acquired in recent times, we shall be able to evolve a system which while blending the old and the new will transcend both in form and content.

I would like to end this paper by quoting Shakespeare :

"Not high raised battlements of laboured mounds
Thick walls or masted gates
Nor cities proud with spires and turrets crowned
Nor bays, nor broad-armed ports where laughing
At the storm rich navies ride
Not storeyed and spangled units
Make the state—but men,
High minded men".

Production of such men is the function of a University. The success of a University may be measured in terms of the high-minded men it produces. ☐

JOURNAL OF
EDUCATION
AND
SOCIAL CHANGE

is designed to focus on policy, research and action for educational and social change, mainly in the Third World countries. Interdisciplinary in scope, its contents reflect the search for alternatives in education and development.

The first and Third issues of the first volume of the journal treated a variety of themes, whereas the second and fourth issues dealt with selected thematic topics like non-formal education and education of the disadvantaged, respectively.

ISSN 0970-3500

Quarterly Journal
Sponsored by
Indian Institute of Education

Editorial Board
P.R. Panchamukhi : Editor
Suma Chitnis
S.B. Gogate
D.T. Lakdawala
Chitra Naik
B.M. Udagaonkar

Managing Editors
V.K. Dhamankar
A.V. Gadgil

Subscription
Single issue : US $ 15 Yearly : US $ 40
(Post free by airmail)

for further information or a sample copy write to Managing Editor.

Indian Institute of Education
J. P. Naik Road, Pune 411 029, INDIA

Educational Ideas of Jose Marti, Jose Vasconcelos and E. Claparede

S. R. Narayan Rao*

> *"Thus, ideas are the mothers of life, its substantial force and essence, the inexhaustible reservoir from which the waves of life flow incessantly".*
>
> —**V.G. Belinsky**

The establishment of the Academic Staff Colleges (ASCs) in various universities is a unique contribution of the University Grants Commission (UGC) towards the upgrading of the quality of the university/collegiate education which seems to have fallen on days of depressing decline and dysfunction. The ASC is a new venture, a new answer to the present educational challenge and it is hoped that in the calculation and composition of this new answer, the educational ideas of Jose Marti (1853-95) of Cuba, of Jose Vasconcelos (1882-1959) of Mexico and of Edouard Claparede (1873-1940) of Switzerland will have a considerable say and impact.

Education has become a weak force in our country today, unable to create the outlook of humanistic secularism as a prop to our spirit of nationalism and the declared purpose of creating a socialistic pattern of society. In such a context of dire intellectual need, the ideas of these educational thinkers are highly relevant in the restructuring of our methodological practices and attitudes in the field of higher education. All these three educationalists were dedicated democrats and secularists who saw education as the best means of achieving man's individual and social redemption. Jose Marti and Jose Vasconcelos were not only educational philosophers but also political activists and indeed, it is a glorious tribute to the community of teachers that Jose Marti died on a battlefield while fighting against oppression and dictatorship in Cuba; Jose Vasconcelos became the Minister for Education in Mexico and it was under his farsighted leadership that a revolution was effected in the practical organisation and development of educational ideals in Mexico, bringing about nationalistic renovation and scientific modernisation. E. Claparede, on the other hand typifies an academic educational philosopher with unswerving commitment to the cause of education and scientific humanism without being a political revolutionary. The ideas of these three thinkers, stimulating and fertile in their own ways, offer a new quarry for extracting guiding principles, and practices in our day-to-day work as teachers.

Of the many definitions of education provided by Marti, off and on, this one is comprehensive and brings out the essence of Marti's philosophy : "To educate is to entrust man with the whole of human experience which has preceded him, it is to make each man a summary of the living world...to place him at the level of his times... to prepare him for life." With admirable clarity and simplicity, Marti has outlined the essential features of true education : universality, contemporaneity and creativity. It is the harmonization of these three concepts in educational practice that makes students develop integrated personalities—an educational ideal held aloft by eminent personages from Swami Vivekananda down to Prof. Yashpal, in our day. According to Marti the central concern of education should always emanate from the present, the contemporary reality. Therefore, for Marti, higher education should have the motif : "For the New World we require a New University". That is what is expected of an Indian University—achieving a contemporary relevance by participating creatively in the development of a new and strong India well equipped intellectually, morally and politically for in the words of Tagore, "The next chapter in world History is internationalism". The socio-political aspect of Marti's educational ideas can be gathered from these words : "Of all the problems which are now a days considered to be of paramount importance, only one is in fact so. It is of such tremendous importance that all the time and energy in the world would hardly be enough to solve it, namely, the ignorance of the classes which have justice on their side". This can also be taken as a summing up of as well as comment on the historical Indian experience of iniquities of caste system, mass illiteracy and unbearable poverty—in short of 'what man has made of man' not only in India but elsewhere in the world also. Hence, Marti feels that education should be "a campaign of tenderness and knowledge" for education should be a promotion of human solidarity and an unremitting effort to bring into existence a better human society.

---

* *Principal, Dr. A.V. Baliga College of Arts and Science, Kumta-581343 (Karnataka State).*

The passion and commitment of Marti is matched by the dedication and vision of Jose Vasconcelos, the Mexican educational philosopher, who like Jose Marti was a life-long campaigner in the cause of education. The words uttered by him on becoming the Rector of the National University of Mexico are significant : "I do not come to work for the University, but to ask the University to work for the people". Can there be a better plea for making university education vitally significant for the all round development of the Society ? It is a pity that our universities have been producing graduates who are more interested in getting cushy and white collar jobs (really a hang over of the colonial era in our recent and modern history) than in making a common cause with the toiling millions of industrial and agricultural labourers and workers in the creation of an egalitarian society which, in fact, will be a practical realization of the spiritualistic message of ancient India. It is this apparent and glaring breach between the educated and the uneducated that made Vasconcelos probe deeper into this matter and say that "educational action is not just for children or students but for the entire community"—not confined to classrooms but concerned with the streets as well. Thus this idea underscores the urgent need for Adult Literacy and Distance Education. Vasconcelos did not reject the past, although the past of Mexican history (like Indian history) is one of affiliation with the European colonialism. He observes that 'colonial humanist legacy should be retained and blended with the rediscovered native values for the ushering in of "the cosmic race" endowed with unique qualities for the creation of a new world'.

Vasconcelos gives us a distinct idea about what should be our pedagogical model when we are wedded to secularist and democratic ideals by calling up the fictional figures of Robinson Crusoe (the character created by the English novelist Daniel Defoe) and Ulysses (an epic hero created by the ancient Greek poet, Homer) to symbolize two kinds of approach : "I take Robinson to symbolize the astute, improvised and exclusively technical method which characterizes the Anglo-Saxon are in the world... efficient but totally lacking in genius. Ulysses on the other hand, symbolizes the traveller, who explores, acts, discovers and creates not only with his hands and never with his hands alone, because he has neither the ability nor the wish to rid himself of the creative talent or of the treasures of that millenial culture that he carries with him and, which broaden his spirit". Here, Vasconcelos, posits the idea of 'Structurative Pedagogy'—the creative fusion of the past with the present to expand the mental horizon of the students. Exclusive concern with the present or mere imitation of the past can only lead to dangerous lopsidedness, immoderate materialism or blind obsurantism (to which we are hapless witnesses in India today). Therefore, for Vasconcelous, Ulysses represents the ideal of a search that goes "beyond the mastering of science into the marvellous unfolding of the mind." Science and technology should be the byproducts of unceasing unfoldment of the mind and not its enslavement. The most crucial and central idea of Vasconcelos's philosophy of education is embedded in this observation : "the educated mind enriches everyday reality precisely because it can modify and outwit certain aspects of necessity, thus developing a free mind, through Knowledge". In the light of the implication of this idea, we can only bemoan the fact that in India, the educated class instead of enriching the ordinary reality has only defrauded it of its moral and humanistic dimensions and reduced it to the threadbare poverty of millions and millions of people. Higher education has only produced the educated unemployed and the unemployably educated. Modification of reality that Vasconcelos so gloriously visualises calls for not only dependable competence but also attitudinal changes—the two vital requirements in which our present educational system is woefully deficient. Education, in essence, is a process of dynamic integration, not mere dull, lifeless routine instruction. Let us hear Vasconcelos on this point : "It was not so much my reasoning that made me philosophize but my desire for integrity in all things : thought, emotion and action".

E. Claparede can be said to be more concerned with the understanding and unravelling of the mechanism of the educational process both in its biological and psychological aspects than with the contours of social and political realities. That way, he appears to be strictly pedagogical without exhibiting the ecstasy and exuberance of Marti or Vasconcelos. But Claparede was no less dissatisfied with the state of education. His concept of education has generally been described as the theoretical construction of a biological anthropology applied to education. The founding of the Institute of Educational Sciences at Geneva in 1912 by Claparede marks a new thinking about the fundamental aspect of education and imparts a new impetus to the educational enterprise. Claparede's idea of education can be taken as an amalgam of Rousseauism and Scientific Positivism and technically described as 'functionalist' view of education or 'dynamogenism' i.e. the idea that every living thing, and the child in a specific way, has its own peculiar driving capacity, which according to Claparede, should be directed and developed into meaningful educational activity. This is the very gist of Claparede's educational philosophy and all his other thoughts and explanations are elaborations in different contexts around the above mentioned central idea. On this matter, the famous educational psychologist Jean Piaget comments : "Everywhere the idea (gains ground) that mental life is a dynamic reality, intelligence a real and constructive activity, will and personality continuous and irreducible creations". For us, Piaget has hit upon the key idea of Claparede—education as the biological and psychological process shaping the "will and personality "of students as "continuous and irreducible creations". A look at our present educational scenario in our colleges and universities shows that "will and personality", are conspicuous by their absence in the products of higher education.

'Profitability', 'Efficiency', and 'Interest' appear prominently in Claparede's exposition of his concept of functionalism. This functionalist approach is denoted by the question "What is it for ?" In the words of Claparede : "After wondering what sleep is for, I tried to see what childhood was for, what intelligence was for, what the will was for." Precisely because Claparede is a realist and not a wishy-washy idealist (as many educational thinkers tend to be) he condemns in no uncertain terms any system of education as 'Wasteful', 'Unproductive', 'Unprofitable' if it involves huge financial expenditure without adequate returns in terms of a maximum number of truly educated youngsters. In a subtle way the cost-benefit notion is worked into the conceptual framework. This may sound 'elitist' but this is only in a low key and actually it is the underutilization of the 'intellectual capital' of the society that receives his strongest condemnation of a system of education. So, 'profitability' means the nurturing of the nation's incipient intellectual capital (the growing children) with maximum advantage to the society because of the proper upbringing and education of the students. Again, 'efficiency' is not to be confused with mechanical dexterity but should be viewed, "as an essential component of any aptitude". For an aptitude becomes manifest only when required by an external situation imposing certain constraints on the subject. Efficiency therefore, does not mean mechanical reproduction (memorization) but a creative confrontation with a problem—with attendant success. Our present examination system has encouraged to an enormous extent the habit of mugging up and the plethora of examination malpractices (the newspaper reports are full of this stuff during the examination season) are a side effect of this inert acquisition of knowledge. Efficiency in Claparede's sense can no more be applied to the successful than to the unsuccessful candidates.

As a disciple of Rousseau, Claparede wanted that our educational activity should be 'attractive' and 'interesting' but spon realized the hollowness of this expectation based on superficial and artificial manipulation of matters : a profounder meaning was imported into the idea of 'interest'. "Interest" cannot be reduced to a question of what is interesting...it is more a question of what is in one's interest...it would be against the interest of the organism to fail to react in a certain way". Interest thus has two aspects-the natural and the social, curiosity should be roused for it is a latent natural quality in a human being (more so in children or students, though in an active form). *But soon this curiosity should be fed and translated* into an intellectual skill, competence which has social implications. Unfortunately, our classrooms in the colleges rarely rouse the curiosity or impart competence but manufacture on a large scale, incomprehension and incompetence.

Claparede provides us with two fascinating metaphors in order to make us understand the pedagogic art : horticulture and chronometer. "Teaching must be founded on a knowledge of the child, just as horticulture is founded on a knowledge of plants". And the second metaphor : "Take a chronometer and take it apart : you will find cog-wheels everywhere. Break one cog : your chronometer will no longer work. It will no longer be of any use or value. Does it follow, that it is the cog-wheel that makes the machine work? Not at all; it is really driven by the tension of the spring. The cog-wheel plays a mechanical role, the spring plays the driving role, the vital role, as we might say if one put oneself in the position of the chronometer itself". The metaphor of plant emphasizes the fact that the horticulturist should be familiar with factors that make for the growth of the plant in the expected way. Similarly, the teacher, the lecturer, should be aware of the student's innate propensities and be in control of those strategies that help in the learning process that help in the formation of the student's proficiency in the subject and his personality in a general way. But subtler than this metaphor is the metaphor of chronometer which perspiciaciously suggests the mechanical and the vital or the spiritual aspects of our routine educational work. Just as the movement of the wheels is a mechanical one, so also instruction in the classrooms is the mechanistic, the logistic part of education. Just as the spring imparts motion to the wheels in the clock or more specifically the tension in the spring, so also it is the larger idea of what education is for, or the faith in the efficacy of education which shows itself as a practical commitment (tension) that imparts intellectual thrust and power to our routine lectures in the classrooms. It is the absence of this invisible 'tension' that makes instruction or lectures sterile and lifeless.

The above metaphors led Claparede to the enunciation of his celebrated concept of 'Copernican revolution' which is expressed in this way : 'Childhood has a biological role to play...one must therefore study the natural manifestations of the child and make educational activity fit in with them. Methods and curricula gravitating around the child, and not the child turning as best it can around a programme decreed without reference to him : that is the Copernican revolution psychology urges on the educator''. The Macaulayan prescription has still been ruling the roost in our colleges and the universities and the copernican revolution appears to be a far cry. We are convinced that the Copernican revolution alone can make our education relevant and meaningful to our students and the society at large. A motivated student is the very fulcrum of the educational activity and a vital factor in its success.

The ideas of Marti, Vasconcelos and Claparede have been given in a rather sketchy and brief way just to make available a broad and general background to our teachers and as a sort of fillip to their own thinking. It is said that college teachers should also be given formal training like the primary and the secondary school teachers for improving the quality of higher education. The suggestion is a plausible one and a realistic appraisal of it goes to point out its inadequacy to meet the peculiar challenge facing the field of higher education—significant attitudinal changes in the teachers as well as the taught. As the inculcation of habits and facts is of prime importance at the primary and the secondary school stage, formal training will really help. But the universities and colleges are not only concerned with the communication of facts but also of how to make sense of these facts with respect to oneself and the society as a whole. Therefore the college pedagogy should aim at the blending of the technical and the general aspects of education. The technical refers to the corpus of material available in each subject and the general refers to a perspective of general ideas into which the technical items are fitted. In fact the ideal thing would be to see to it that our day-to-day classroom lectures are animated by these general educational ideas and the process that produces this precious animation is the real orientation that is required for a college teacher. Academic Staff College is preeminently suited for this purpose and it is hoped that the ideas of Marti, Vasconcelos and Claparede will accomplish, albeit in a small way, this purpose.

Socialisation, Education and Women :
Exploration on Gender Identity

K. Chanana (ed.)

This selection of papers was presented at a seminar organised by the Nehru Memorial Museum and Library in 1985. The contributors are drawn from different disciplines—and the essays, therefore, cover a variety of fields. The main point that emerges from this volume is the overreaching importance and impact socialisation has had on the lives of girls and women.

Hardbound Rs 150.00

ORIENT LONGMAN
Regd. Office : 3-6-272, Himayatnagar
Hyderabad 500 029

BOMBAY CALCUTTA MADRAS NEW DELHI
BANGALORE GAUHATI HYDERABAD
LUCKNOW PATNA

Education and National Development

"What is the role of the educational system in national development ?" asked Shri B. Shankaranand, Union Minister of Law & Justice and Water Resources, while delivering the Convocation Address at the 131st annual convocation of the University of Madras. The Minister volunteered the answer when he said, "Education should be the basic input in the gigantic effort of our national development and social change. Education must serve as an instrument for social change, transformation, development and promotion of equality and humanism." Excerpts

Convocation

Since Independence the aims of education have expanded to a revolutionary degree with the right of access to education as a basic ideal while the lack of resources and the poor holding capacity of the system itself have not been able to achieve this ideal in spite of the Constitutional directive on the State and Central Governments.

Now, what is the role of the educational system in national development? It is a peculiar feature of Indian education that while the people and the Government firmly believe that it is through more education to more people that individuals and society will prosper, there is a glut of overflow of educated manpower in the country resulting in increase of the educated unemployed.

Diversification of courses, educational and vocational guidance, correspondence and continuation courses and job-biased educational institutions like polytechnics and occupational institutes are extensively tried. But the experience has shown that despite these innovations, the quality of the outputs of the educational system has not changed much. The recent approach to this problem has been one of changing the traditional styles of thinking and action, demanding works under educational plan and open universities in order to keep pace with fundamental changes that are sought in economic and cultural ffelds. Strenuous efforts are made in the country to introduce a scientific outlook and a new technology bias into our educational system. The use of mass media of communication, the agricultural extension programmes and other non-formal educational activities form an important aspect of the education system in the country. The formal academic orientation in terms of classroom instruction exclusively with textbooks leading to passing of examinations is of no avail, if it is not enhanced by making it environmentally coherent. The continuing interaction with the surroundings becomes important for a student so that he can constantly evaluate the content of his learning in the light of where and in what manner he can apply the learning he acquires. The activities of Extra-mural Studies and Community Extension Services are significant in this context, as they help to understand the life and needs of the community so that changes could be effected in the curriculum based on the principle of relevance, modernisation and diversification.

Education should prepare the individual to discover his talents, sharpen his abilities and realise his potential. Education imparts to him knowledge, skills, attitudes, endows him with social and cultural values, and prepares him as a responsible citizen in the community so that he can contribute to the productive programmes of the national development. Education should be the basic input in the gigantic effort of our national development and social change. Education must serve as an instrument for social change, transformation, development and promotion of equality and humanism.

It is in this context that we feel a pardonable pride in reflecting on the fact that our great leaders of modern Indian thought, political action and national education, like Aurobindo, Vivekananda, Tilak, Rabindranath Tagore, Maulana Azad, Radhakrishnan, Zakir Hussain, Dr. Ambedkar and, above all, Gandhiji and Jawaharlal Nehru, perceived the organic linkage of India with the wider struggling world as an important ingredient of our national perception.

Education is an important instrument for shaping the personality and moulding the character of individuals. It finally helps to mould the shape of the society itself. The quality and content of development of our social, political and economic life is closely connected with the quality of education imparted at the various levels in our educational institutions and we are looking to these institutions to produce young men and women equipped with knowledge, skills and ideals which will enable them to play an effective role in national development, and it is with the help of these young men and women that the new India of our dream, united, strong and prosperous, is to be built and our ideal of a secular, socialistic and egalitarian society is to be fulfilled. We have to march on the path of progress by narrowing down the social and economic disparities.

The reason for slow progress towards our national ideals to some extent lies in our outmoded educational system inherited from the British rulers, which was mainly devised to keep us docile and servile. It was not at all meant to instil ideals and aspirations into the lives of our youth. Attempts have been made since Independence to reform educational system and we have achieved a fair degree of success in the field of medicine, science and technology. For it is inevitable that our priorities in education should remain utilitarian for some time longer. Considering, therefore, the expansion of facilities already achieved and the increasingly available infrastructure as a result of several Plan programmes, I am of the view that it is time to pay special attention to the quality and content of education and its relevance to national development.

The mission of our education system should be to capture afresh for each succeeding generation of youth those fundamental values which inspired and visualised our culture through ages. These are the values which can bring compassion and charity and the spirit of service into the lives of our people and end the violence and intolerance which we sometimes see inside and outside the university campuses. Only our cultural heritage with its abiding emphasis on unity, tolerance, discipline and brotherhood can help our society to preserve its equilibrium.

Educational development in the post-Independence era presents a picture of huge masses of people struggling restlessly to make up the decadence of centuries of slavery, exploitation and ignorance though conscious efforts for social, economic and intellectual development. During the last 2-3 decades, there has been a tremendous upsurge of people and their aspirations. The participation rates and the enrolment rates in various educational institutions have over-strained the educational capacity of the country, which has been further strained by population explosion while the incapacity of the educational system to meet the social demand has frustrated the rising aspirations of the ever-increasing population. It has brought inevitable qualitative and quantitative impediments to social and economic development.

The vast masses of people have become conscious of their poverty and they want to get rid of this as quickly as possible. It is their strong belief that "education" will deliver the goods to them, and the capcity of the educational system has to prove itself for its adequacy in fulfilling the hopes and aspirations of the people; with the result an uneasy balance of tolerance exists in the country between the restless, buoyant people and the incapacitated educational system.

We cannot afford to be hopeless spectators to wait and guess as to what will happen in the next decades. Our new Education Policy envisages a sound education system which, I hope, will completely identify itself with the needs af the society for its full development into an egalitarian one. Our path of education shall have to be clear as far as future is concerned.

We are in terms of population the second largest country in the world and in terms of territory the fifth largest. We are also the world's biggest participatory democracy, whose electorate is almost equal to the total population of the United States of America. The Republic of India is also one of the world's biggest Federal Society. We are a multi-ethnic, multi-religious, multilingual and multi-regional society, aspiring to build a cohesive pattern of federal fraternity in keeping with the heritage of the Indian National Movement, we remain a unified country aspiring to deepen our ties of national integration. Parochialism of religion, caste, creed, region and language, etc. should not cloud our national unity We might be by birth and domicile Tamilians, Kannadigas, Andhras, Bengalis, Panjabis or Assamese, but we are all basically Indians. In fact, a healthy national integration is not contrary to the necessary and desirable promotion of regions, even sub-regions. If India is weakened or is destabilised, all its regions and parts would also suffer.

Friends, it seems to me appropriate to be reminded at this juncture of the terrible challenges facing our great experiment in building brick-by-brick a stable edifice of healthy, vibrant and just social order. I have also to emphasise the necessity of national integration and political stability for our great country India for very obvious reasons.

It is important to stabilise our

(Continued on page 15)

Standing Committee Meets at Sambalpur Varsity

The 218th meeting of the Standing Committee of the Association of Indian Universities will meet at Sambalpur University on 5 November, 1988. Presided over by Dr. P.V. Salvi, President of AIU and Vice-Chancellor, Marathwada Krishi Vidyapeeth, the meeting is likely to be attended by Prof. G. Ram Reddy, VC, Indira Gandhi National Open University; Prof. N.M. Swani, Director IIT, Delhi; Shri Syed Hashim Ali, VC, Aligarh Muslim University; Dr. Bhagat Singh, VC, Punjabi University; Dr. A.M. Michael, Director, Indian Agricultural Research Institute, New Delhi; Dr. M.S. Valiathan, Director, Sree Chitra Tirunal Institute for Medical Sciences & Technology, Trivandrum; Dr. D.M. Nanjundappa, VC, Bangalore University; Dr. R.V. Ramakrishna, VC, University of Agricultural Sciences, Bangalore; Shri P.S. Habeed Mohamed, Administrator, Utkal University; Prof. K.J. Mahale, VC, Manipur University; Prof. Mohit Bhattacharya, VC, University of Burdwan; Prof. K.N. Shah, VC, Saurashtra University; Prof. Ramlal Parikh, VC, Gujarat Vidyapeeth; Dr. C.R. Mitra, Director, Birla Institute of Technology & Science, Pilani; Prof. V.D. Gupta, VC, University of Gorakhpur; Dr. (Miss) M.D. Bengalee, VC, University of Bombay; Prof. B.P. Dash, VC, Sambalpur University; and Dr. K.M. Safeeulla, VC, Mangalore University.

A number of important issues will come up for discussion by the Committee. Dismissal/resignations of the Vice-Chancellors of universities in Bihar and Dr. Harisingh Gour Vishwavidyalaya will be taken up when the Standing Committee considers the report of its subcomittee comprising former Vice-Chancellors Prof. R.C. Paul (Panjab University), Prof. M.V. Mathur (Rajasthan University), Prof. Rais Ahmed (Kashmir University), Prof. M.M. Chakraborty (Jadavpur University) and Prof. (Mrs) Vanaja Iyengar (Sri Padmavati Mahila Vishwavidyalya). The Standing Committee will also have for its consideration Prof. Ramlal Parikh's (VC, Gujarat Vidyapeeth) proposal to introduce University News in Hindi in addition to its English edition. The progress of the Indo-U.S. Book Bank for supply of technical books to Indian universities/colleges through AIU will also be reviewed.

The Committee will also have for its consideration the reports of its sub-committees, namely, Staff Affairs Committee, Finance Committee and Equivalence Committee. Report of the Steering Committee for ACU Conference of Executive Heads to be hosted by AIU in January 1991 will also be taken up. It will also have for its consideration the request of North Gujarat University for being admitted as a Provisional Member of the Association.

The Sambalpur University, our hosts to the Standing Committee, was established in 1967 with its main campus at Jyoti Vihar, Burla. The University has 85 degree colleges, 16 postgraduate departments, one college each for Law and Medical Science and two Engineering Colleges. Both the Medical and Engineering Colleges offer Master's and Doctoral Programmes. From the current academic session, the University has introduced a 5-year Law Degree Programme as recommended by the UGC. This is the first in all the Universities in Orissa and the second one in India after Calcutta University to introduce this course. □

Education for Peace

A National Seminar on 'Education for Peace' was recently organized under the auspices of the Department of Education and the Economics of Education Unit of the Department of Economics, University of Bombay. Dr. (Miss) M.D. Bengalee, Vice-Chancellor, University of Bombay, presided over the Seminar while Shri Homi J.H. Taleyarkhan, delivered the Keynote Address. Principals and teachers of Education Colleges, Principals and teachers of schools, Heads/Principals of Orphanages, Balbhavans and Missionaries of charity, the teachers of the Department of Education and Economics of the University of Bombay and teachers from a few Arts, Science and Commerce colleges participated.

Welcoming the participants, Professor R. Bharadwaj, Director, University Department of Economics pointed out that in the Department of Economics of the University of Bombay, in the revamping of the curriculum in Economics, issues of current paradigms of education were considered. Peace studies existed at all levels of education. But, this Seminar, he stated, would concentrate on the role of school and university education for peace.

Shri Homi J.H. Taleyarkhan, in his Keynote Address, emphasised that "the world cannot afford to toy with war-like postures but be firm in the saddle of Peace". He praised the good work done by the University of Bombay in organizing this Seminar and outlined the role of education as (1) promoting national and international integration, and (2) creating consciousness for peace and development. He observed that even if 50% of the total annual world military spending was diverted to education and health activities, it would help to provide education to more than 500 million children, and heath to more than 20 million patients. According to him, to bring peace in the world was an enormous national and international task and this could be done not by governmental or official agencies, but by non-official agencies like the universities. He expressed the hope that the Seminar would help to form strong public opinion against conflicts and confrontation and create 'peace consciousness' among people.

Dr. (Miss) M.D. Bengalee, the Vice-Chancellor, in her Presidential Address, emphasized that people who are in regular touch with children and adolescents can contribute a lot to bring peace in society. The aims of education have been national peace and international understanding. She desired that universities should help to make the individual balanced, contented, integrated and confident. Education could create a sense of love and brotherhood among people. She said that the New Education Policy aimed to develop in each student a caring attitude, tolerance and a desire to help the less-fortunate, which is an indication of our care for our people.

Dr. Bengalee also observed that peace depended on socialisation, syntality and togetherness. Technical progress has reduced socialisation and syntality and has made each individual independent who has no smpathy for others. Education can contribute to improving social relations. It could also impress upon mass media like the cinema not to glorify religion, war conflicts, poverty, sex and atrocities on women. What is necessary is to emphasize mental hygiene.

In the theme paper 'Education for Poace—Role of Schools', Mrs. R.P. Kalliath argued that the negative attitude to the concept of peace should be overcome by making peace studies activity-oriented, challenging, exciting and adventurous. The spirit of peace should be infused through the daily curriculum, which should focus on the negative issues of social evils and the positive aspects of peace. Languages and social studies, including moral science, are particularly suited for peace education.

In the other theme paper 'Education for Peace—The Role of Universities' Dr. S.M. Israney said that peace education should form an integral part of citizenship training of youth; it should teach a rational outlook and convince people to settle conflicts through non-violent and democratic methods. Education should develop non-frustrating modes of behaviour through sensitivity training, group dynamics and role-playing. Education should bring peace within oneself and create suitable environment for peace.

Dr. Israney pleaded for a more constructive role in peace by Universities. They must foster 'total' human, intellectually mature world citizens or future-oriented personalities. University curricula must include courses on peace. Revision of world history, introduction of compulsory field work, a course in world citizenship, increase in foreign language load and more international exchange programme should be undertaken.

The following recommendations were made at the seminar :

(1) Effective communication skills should be developed.

(2) Children at school should be exposed to the existing social evils. They should do field work in slum-areas, should visit hospitals, etc. to have a first-hand knowledge of social problems.

(3) The role of teacher should be made effective for peace education. Only teachers properly qualified in all respects should be appointed and allowed to teach in schools and colleges.

(4) The role of NSS could be expanded. The students should be given work opportunity to do things for others.

(5) Students should be exposed to teachings of great rulers, philosophers and social reformers.

(6) Lessons on philosophy of life should be taught.

(7) Value-oriented education, which now exists only in colleges of education, should be made compulsory in all faculties.

(8) Film appreciation courses should be introduced in schools or colleges to overcome the negative effect of films on young minds.

(9) More T.V. time should be allotted for value based peace education. □

Illinois-Baroda Faculty Exchange Project

The University of Illinois Urbana—Champaign (UIUC) in collaboration with the Faculty of Home Science, M.S. University of Baroda undertook in 1985 a collaborative project titled "Group Project to India" under Women in International Development (WID). The primary objective of the Project was developing a curriculum for WID. This project was sanctioned under the Full-bright Hay's Group Study Abroad Programme. The outcome of the project was a monograph entitled "Household Resources : Their Changing Relationships—Case Studies in Gujarat, India" published by International Agriculture Publications, College of Agriculture UIUC and the same is used as a sourcebook at the undergraduate level in Women's Studies and Human Resource and Family Studies Programme at University of Illinois Urbana-Champaign, Faculty of Home Science, M.S. University of Baroda and elsewhere.

Another collaborative project titled "Illinois Baroda Faculty Exchange Project" in WID between these two Universities was proposed to United States Information Agency and was sanctioned. This interdisciplinary project of three years duration started in the year 1987. The aim of this project was to develop a number of teaching modules pertaining to various areas of development programmes focussing on women and households. The topics covered in the set of modules include Household and Families, Household Production, Women and Household Production, Women in Agriculture, Women and Rural Credit, Household Energy Consumption, Women and Fertility Behaviour, Women's Health Care Services, Housing and Women, Household Food Systems and the like. The focus of these teaching modules which are to be used at postgraduate level, is on variables of significance to the topic in question and research methodology. Faculty exchange between the two universities is an integral part of the project.

Two International Workshops were also planned with the purpose of refining the teaching modules. First of these two workshops titled "Women, Households and Development : Building a Data Base", was held from July 11-22, 1988 at University of Illinois, Urbana—Champaign. The workshop was attended by nearly 65 participants, from 22 countries of the World and included academicians, researchers, government officials, representatives of implementing agencies of development projects and officials of United Nations.

The second workshop in the series is planned to be held at Faculty of Home Science, M.S. University of Baroda from June 25-July 4, 1989 and is expected to have representation from various countries especially of the Asian Region.

Sri Sathya Sai Centre for Computer Sciences

Sri Sathya Sai Centre for Computer Sciences established in June 1988 at Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam, subscribes to the philosophy of educating the students with academic knowledge as well as practical skills not only in Computer Sciences and Information Systems, but also in other related fields. The Centre is equipped with a 9-Megabyte FUTURAL AL 6832 supermini which runs under UNIX (System V) operating system. This Computer system supports presently 14 Intelligent Terminals which are solely allocated for use by students and staff members of the Institute. The terminals are all IBM compatible PC systems which support local processing under MS-DOS operating system. A 3-Megabyte PC/AT is being used as a file server for 7 Personal computers connected via LAN (ArchNet).

A wide selection of software systems/packages are made available to students, research scholars and staff members. These include UNIFY and other data base and spreadsheet packages, UNIX text editors, and the language compilers for C, LISP, Prolog, Pascal, FORTRAN, COBOL, BASIC, Modula and Ada.

The Institute proposes to have an advanced Master's level course in Computer Science at the Institute. Short term courses for the students aimed at the development of their knowledge/skills/abilities relating to operation of computers and applications in various areas with the help of available software support are offered by the centre.

Orientation Programme on Autonomy

Shri Durgaprasad Saraf (Autonomous) College of Arts and Applied Sciences, Shreeramnagar (A.P.) organised a two-day Orientation Programme on College Autonomy for the Principals and Heads of the Departments of the seven autonomous colleges in the jurisdiction of Andhra University. The topics discussed at the Programme included "Innovations in Teaching and

Learning Processes", "Human Resources Development", "Research and Extension Activities", "Accountability and Evaluation", "Communication Skills", "Autonomy and Accountability" and "Restructuring of Courses". The participants were divided into groups and their recommendations for effective implementation of autonomy were accepted.

Prof. K.V. Ramana, Vice-Chancellor, Andhra University, gave away the certificates to the participants and Dr. G.D. Sharma of NIEPA, addressed them on the concluding day. Principal A.L. Mohan was the Director of the course while Shri I. Bhanumurty acted as Course Coordinator.

IGNOU Plans Science Courses

The Indira Gandhi National Open University (IGNOU) proposes to introduce B.Sc. courses in mathematics, physics, chemistry and life sciences as well as courses in computer application and library science in July, 1989. This was disclosed by Prof. G. Ram Reddy, Vice-Chahcellor of the University in Chandigarh recently. He said the most popular courses being conducted by the university are B.A., B.Com. a certificate course in food and nutrition and a course in management. After one year a student is entitled to a diploma in management; at the end of the second year he gets an advanced course diploma; and at the end of the full three-year course he is entitled to get the M.B.A. degree. A graduate with three years of supervisory experience or a non-graduate with five years of field experience can take up the management course.

In its first year in 1987, 4,500 students were enrolled. The number has risen to 32,000 this year. It is expected to touch 70,000 in 1989 and one lakh in 1990.

Technology Data Bank

A sophisticated technology data bank is proposed to be set-up at New Delhi to provide information to both public and private sectors about the latest technological developments the world-over. The bank, to be set up at the Directorate General of Technical Development (DGTD) will draw advanced technologies from the data banks of developed countries. The Government is reported to have already initiated a dialogue with the European Economic Community (EEC) in this regard.

The main feature of the data bank is on-line access to European data banks. The Telecommunications Department is providing all facilities for connecting the EEC computers with those of India. The data centre at DGTD will be connected with the overseas computer network from which the entrepreneurs could draw upon the required technological data.

Since EEC is enlarging the community, it will upgrade its standardisation which will be of great use to the Indian entrepreneurs. EEC has also agreed to provide technological cooperation and exchange of experts as also assistance in adopting standards. EEC has also agreed in principle to upgrade Indian test labs.

The setting up of the data bank is in tune with the Government's policy to assimilate and adopt imported technologies for developing the country's own superior technologies.

Kota Varsity Courses

The Kota Open University proposes to start a number of new diplomas from the next academic session. These include Diplomas in desert development and operation planning (the first of its kind in the country), petroleum and chemical technology, automobile engineering, animal husbandry and dairy farming, bi-technology and banking insurance and allied fields.

Science and Spirituality Contest

An All-India Paper Writing Competition on Science and Spirituality has been planned by the Brahma Kumari's World Spiritual University, an organisation devoted to moral and spiritual education of mankind irrespective of caste, creed, religion and nationality. The competition is being organised as a part of the International Conference of Scientists, Technologists and Spiritualists to be held on 16-18 December, 1988 at Bangalore. The objectives of the contest are (i) to promote scientific thinking and spiritual values; and (ii) to co-ordinate the work of scientists and spiritualists on certain themes common to both.

The competition will be held in two categories—(1) Teachers in Universities and IITs, College Principals, Research Associates and Research Scholars etc., and (2) those studying for graduation and Master's degree in any of the Science subjects. The subjects for papers are : Category I—(i) Areas of cooperation between scientists/technologists and spiritualists for building a better world, (ii) Understanding Consciousness or soul in the light of science and spiritual knowledge; and Categorly II—(i) Need for spirituality for scientists, and scientific temper for spiritualists, and (ii) Complementary roles of science and spirituality. The winners of 1st, 2nd and 3rd prizes would get Rs. 2000/-, Rs. 1500/-

and Rs.1000/- respectively in Category I and Rs. 1500/-, Rs. 1000/- and Rs. 750/- respectively in Category II. Last date for receipt of papers is 20 November, 1988.

Further details with regard to eligibility and Rules and Regulation may be had from the Organisers, Paper Writing Competition, Brahma Kumaris World Spiritual University, 3/A, New High School Road, V.V. Puram, Bangalore-560 004.

News from UGC

INSAT-1B Programme of UGC

Between 16th November to 30th Nov., 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

16.11.88

"Ramjets—II"

"Festival Time"

"Brain and Nervous System—II"

17.11.88

"Pulse Circuits—I"

"India and America : Literary Relationships"

"Secrete of Stone Water"

18.11.88

"Algebraic Structure—I Theory of Sets"

"In Search of Ethnic Dimensions—II"

19.11.88

"Ready, Get Set, Go"

"Noh Drama"

"The Secrets of Stradivarius"

20.11.88

No Telecast

21.11.88

"Optical Illusions—II Artistic Expressions"

"Reinforced Concrete Design"

"Fight Against Hunger : Increasing Crop Yields"

22.11.88

"Carbon Flies"

"Enhancing Creative Thinking—IV"

"Ayurveda Series—I : The Silent Sentinels"

23.11.88

No Telecast

24.11.88

"Pulse Circuits—II"

"Women Writers in India"

"Challenging the Elements"

Education and National Development

(*Continued from page 10*)

national sovereignty together with National Integration. It is evident that unless our national stability is assured it would be difficult for us to implement our economic plans of development and to bring about the basic and necessary social transformation. I would like to emphasise in an enlightened gathering like this—University Convocation—that unless we develop national discipline, we may weaken the edifice of stability needless chaos and anarchy, specially at a time when destabilisation has risen its ugly head in many parts of the world prompted by interested powers. It is important for us to be doubly vigilant about the disastrous consequences of unwittingly playing into the hands of the forces of destabilisation.

It appears to me that the task of those of us who are fortunate in being the recipients of national benefits in terms of education, employment, housing, medical care and other amenities, should repay at least a part of our national debt to the teeming millions of our countrymen in helping to remove, as Gandhiji had once said: "Tears from their eyes". This, we can do by asking ourselves as to what constructive role we can and must play in mobilising our strength to achieve a just social order. □

25.11.88

"Algebriaic Structure—II Relations and Mappings"

"Sociology of Professions—Case Study of Nursing"

"Ecosystems in India—Ecomechanics—II"

26.11.88

"Language of Music"

"Art and Craft in Early Years"

"Art of Metal"

27.11.88

No Telecast

28.11.88

"Optical Illusions—III : Impossibles"

"Bridges of Help Angerous Company"

"University Round Up"

29 11.88

"Metal Memory"

"Enhancing Creative Thinking—V"

"Ayurveda Series—II : Herbal Wealth of Gujarat"

30.11.88

"Hydrotechnical Research in Energy"

"Forts of Deccan—Daulatabad"

"Nervous System in Animals"

News from Abroad

NewZealand Proposes Graduate Tax

A Committee constituted by the New Zealand Government, under the chairmanship of Prof. Gary Hawke of the Economics Department of Victoria University, has in its report proposed tax-loan rebate scheme which would recover 20 per cent of the average costs of tuition from almost all tertiary students after they enter the workforce. On 1986 figures, this would cost students an average of just under NZ $ 1,900 for each year of full time education. Unlike the Australian scheme, the costs of tuition would have to be repaid with inflation adjustments and a real interest rate of 3 per cent on top. In Australia graduates do not start repaying course costs until their incomes exceed the average wage, but in New Zealand the tax may have to start at lower incomes to prevent the interest burden growing.

Under the Hawke scheme, students taking more expensive courses such as medicine would repay higher costs. Professor Hawke believes this would give universities the incentive to cut the costs of training in expensive subject areas, and to cross-subsidize those areas from cheaper courses.

A Public Scholarship and Research Agency would administer all state funded "public good" research. Under the proposal, universities would lose a third of their existing block grants, amounting to nearly NZ $ 180 million a year. That money would be vested in the new research agency and would become subject to competitive bids by all research institutions.

While polytechnics have welcomed the scheme, the universities are predictably critical of the proposal. Vice-Chancellors' Committee Chairman, Dr. Wilf Malcolm, said the move to separate teaching and research functions "could damage universities' unique role as bodies committed to the advancement and dissemination of knowledge."

विद्यार्थियों / अध्यापकों के लिये शुभ संदेश

पठन-पाठन प्रक्रिया में सुविधा के लिये भारतीय विश्वविद्यालय संघ कई वर्षों से स्नातक व स्नातकोत स्तर के विभिन्न विषयों पर अंग्रेजी भाषा में प्रश्न-बैंक प्रकाशित करता रहा है। इन प्रकाशनों में उपलब्ध सामग्री एवं सूचना शिक्षकों एवं विद्यार्थियों के लिये अत्यन्त उपयोगी सिद्ध हुई है।

हिन्दी भाषी प्रांतों के शिक्षकों एवं विद्यार्थियों की लम्बे समय से चली आती मांग को पूरा करने के लि प्रश्न-बैंकों की इस श्रृंखला को हिन्दी भाषा में प्रकाशित करने का हमारा यह पहला प्रयास निश्चय ह लाभप्रद सिद्ध होगा। इसी आशा के साथ प्रस्तुत है :

जन्तु विज्ञान (Zoology)	मूल्य रु० 100.00
रसायन विज्ञान (Chemistry)	,, रु० 160.00
वनस्पति विज्ञान (Botany)	(प्रकाशन में)

अधिक जानकारी के लिये लिखें अथवा सम्पर्क करें —

अवर सचिव (प्रकाशन)
भारतीय विश्वविद्यालय संघ
ए.आई.यू. हाउस, १६ कोटला मार्ग
नई दिल्ली-११०००२

CALENDAR OF EVENTS

Proposed Date of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be contacted
October 31-Nov. 4, 1988	Short Term Course on Remote Sensing and Geo-Data Base with Socio Economic Information.	To expose the concept of Data Base Approach towards handling and analysing the Remotely Sensed and Land-based Information.	Centre of Studies in Resources Engineering, IIT, Bombay.	Dr. T.V. Pavate Chief Project Engineer, Training Extension and Project Cell, RSD-VI, CSRE, IIT, Bombay-400076
Nov. 17-23, 1988	Laser Workshop for Physicists and Chemists.	To enable the young research workers, engineers and teachers to get acquainted with the recent developments in lasers and their application in the fields of spectroscopy and photochemistry.	Department of Physics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar (M.P.)	Prof. R.S. Kasana, Organising Secretary, Department of Physics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar (M.P.) 470003
November 19-20, 1988	8th Annual Conference of the Maharashtra Federation of College Library Associations.	Topics proposed to be discussed include (i) Computer Application in Library Services; and (ii) Role of College Library in Adult Education.	Maharashtra State Federation of College Library Associations, Solapur.	Mr. R.A. Panjab; Convener, Sholapur Social Association's Arts and Commerce College, 370 A, Muslim Pachha Peth, Solapur-413005.
December 13-17, 1988	**International Seminar on Education and Training in Water Resources in Developing countries.**	**To assess the requirements of manpower, education and training in Water Resources Sector upto the year 2025 in the developing countries.**	**Central Board of Irrigation and Power, New Delhi.**	**Mr. C.V.J. Varma, Organising Secretary, International Seminar on Education and Training, Central Board of Irrigation and Power, Malcha Marg, Chanakyapuri, New Delhi-110021**
December 15-17, 1988	National Conference on Fluid Mechanics and Fluid Power.	To provide a forum for exchange of information on topics in fluid mechanics and design, research and development activities in areas like power generation, aerodynamics, fluidics, biomechanics, etc.	Harcourt Butler Technological Institute, Kanpur.	Dr. N.L. Kachhara, Organising Secretary, 16th National Conference on Fluid Mechanics and Fluid Power, Mechanical Engineering Department, Harcourt Butler Technological Institute, Kanpur-208002

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Periodicals received in the AIU Library during September, 1988

EDUCATIONAL PHILOSOPHY

Chaddha, D.K. Self-concept of teachers and their emotional adjustment. *Indian Ednl Review* 23(1), 1988, 61-8.

Gupta, G.S. Fundamental dimensions of creativity. *Indian Ednl Review* 23(1), 1988, 51-6.

Thakur, S.K. Assessing teaching behaviour through personality characteristics. *Indian Ednl Review* 23(1), 1988, 7-15.

EDUCATIONAL SOCIOLOGY

Ravitch, Diane. Education and the public good. *Coll Bd Rev* (148), 1988, 11-5, 37-9.

Selvaratnam, Viswanathan. Ethnicity, inequality and higher education in Malaysia. *Comp Rev Edn* 32(2), 1988, 173-96.

Yadav, S.K. Educational wastage amongst scheduled castes : A research review. *Indian Ednl Review* 23(1), 1988, 90-8.

EDUCATIONAL ADMINISTRATION

Wolf, W.C. Improving the prospects of organizational change initiatives. *Knowledge* 9(3), 1988, 383-403.

TEACHERS & TEACHING

Bhatia, S.K. Microteaching with and without integration training. *Indian Ednl Review* 23(1), 1988, 111-16.

Darling-Hammond, Linda and Green, Joslyn. Teacher quality and educational equality. *Coll Bd Rev* (148), 1988, 16-21.

Desai, Prakash. Individualized instruction. *J Indian Edn* 14(1), 1988, 32-5.

Judge, Harry G. Cross-national perceptions of teachers. *Comp Rev Edn* 32(2), 1988, 143-58.

Mani, R.S. Theories of teaching : An overview. *Indian Ednl Review* 23(1), 1988, 28-40.

Prabhakar Singh. Factor analysis of teaching behaviour. *Indian Ednl Review* 23(1), 1988, 103-11.

Schaffer, Jane. What makes a good teacher the 'best'. *Coll Bd Rev* (148), 1988, 21-3, 39-41.

EDUCATIONAL RESEARCH

Cruise, Robert J. Research considerations in setting effect size. *Indian Ednl Review* 23(1), 1988, 1-6.

EDUCATIONAL TECHNOLOGY

Dubey, Archna. Significance of cybernetic feedback in the teaching-learning process. *J Indian Edn* 14(1), 1988, 27-31.

EDUCATIONAL EVALUATION

Ewell, Peter T. and Boyer, Carol M. Acting out state-mandated assessment : Evidence from five states. *Change* 20 *(4), 1988, 41-7.*

Hills, John R. and others. Equating minimum-competency tests : Comparisons of methods. *JEM* 25(3), 1988, 221-32.

Hutchings, Pat and Reuben, Elaine. Faculty voices on assessment : Expanding the conversation. *Change* 20(4), 1988, 48-55.

Marsh, David D. and Glassick, Judith M. Knowledge utilization in evaluation efforts : The role of recommendations. *Knowledge* 9(3), 1988, 323-42.

McKinley, Robert L. A comparison of six methods for combining multiple IRT item parameter estimates. *JEM* 25(3), 1988, 233-46

Wilcox, Rand R. and others. A note on decision-making processes for multiple-choice test items. *JEM* 25(3), 1988, 247-50.

ECONOMICS OF EDUCATION

Gupta, M.L. Analysis of the finances of correspondence education and its educational implications : A case study of Rajasthan. *Indian Ednl Review 23(1), 1988, 16-27.*

Kealy, Mary Jo and Rockel, Mark L. Merit scholarships are no quick fix for college quality. *Eco Edn Rev* 7(3), 1988, 345-55.

Kodde, David A and Ritzen, Jozef, M.M. Direct and indirect effects of parental education level on the demand for higher education *J Human Res 23(3), 1988, 356-71.*

PHYSICAL EDUCATION & SPORTS

Haywood-Farmer, John and others. Using simple simulation models to manage sports services. *J Sport Management* 2(2), 1988, 118-28.

Hunnicutt, David. Integrating quality circles into college athletic departments. *J Sport Management* 2(2), 1988, 140-5.

Rail, Genevieve. A theoretical framework for the study of complex sport organizations. *J Sport Management* 2(1), 1988, 40-52.

VOCATIONAL EDUCATION

Grubb, W. Norton. Vocationalizing higher education : The causes of enrolment and completion in public two-year colleges, 1970-1980. *Eco Edn* Rev 7(3), 1988, 301-19.

Paulsen, Michael B and Pogue, Thomas F. Higner education enrolment : The interaction of labour market conditions, curriculum, and selectivity. *Eco Edn Rev* 7 (3), 1988, 275-90.

EDUCATIONAL JOURNALISM

Altbach, Philip G. Editing scholarly journals : international perspectives. *J Indian Edn* 13(6), 1988, 41-6.

King, Edmund. Comparative education journals today and tomorrow. *J Indian Edn 13(6), 1988, 13-7.*

Silverman, Robert J. Peer judgment : An ideal typification. *Knowledge* 9(3), 1988, 362-82.

Singh, R.P. 'Education' in newspapers. *J Indian Edn* 13(6), 1988, 54-61.

Visalberghi, Albo. Editing educational magazines : Some problems. *J Indian Edn* 13(6), 1988, 52-3.

ADULT EDUCATION

Lieven, Mike. The liberal progressive movement and access to higher education. *Hr Edn Rev* 20(3), 1988, 61-9.

Ranson, Baldwin. Rural education and economic development in China, Mexico, Japan and the United States. *Comp Rev Edn* 32(2), 1988, 213-25.

Ubaidullah, M. Population education : Knowledge and attitudes of NAEP participants. *Indian Ednl Review* 23(1), 1988, 68-73.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Finn, Chester, E. Judgement time for higher education. *Change* 20(4), 1988, 35-9.

Tight, Malcolm Institutional typologies. *Hr Edn Rev* 20(3) *1988*, 27-51.

Attention : Universities/Institutes

Bibliography of Doctoral Dissertations 1986-87 is now under compilation. Kindly ensure that information in respect of doctoral theses accepted by your university during July 1986 to June 1987 is sent to the Association as per prescribed proforma latest by 30th November, 1988. For further information, please write to the Deputy Secretary (Library & Documentation), Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110 002.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Biology

1. Chakrabarti, Kalyan. *Man, plants and animals : statistical approach to the bio-ecological study of the forests of West Bengal.* Sambalpur. Dr. S.N. Ratha, Prof , Department of Anthropology and Sociology, Sambalpur University, Burla.

2. Selvan, R. Senthamil. *Immunobiological effects of arecoline, a plant alkaloid.* JNU. Prof. A. Ramesha Rao, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

Biochemistry

1. Goswami, Rajendra Gulabpuri. *Studies on the effect of polyamines, guanidines and hormones on glutathione metabolism in germinating pea (Pisum sativum L) seeds.* Baroda

2. Jaya, P. *Studies on the metabolism of lipids and connective tissue macromolecules.* Kerala. Dr. P.A. Kurup, Prof. (Retd), Department of Biochemistry, University of Kerala, Kariavattom.

3. Mukhopadhyay, Pampa. *Biochemical and immunological studies on filarial infection in albino rats.* Calcutta.

4. Pachal, Swapna. *The effect of exercises in relation to cerebellum on the gastric secretory function.* Calcutta.

5. Shashikant, C.S. *Role of plasma membrane in DNA synthesis : Identification and characterization of a membrane bound DNA polymerase.* Osmania.

6. Sil, Mira. *Biochemical and immunological studies on different types of brain cells.* Calcutta.

7. Tule, Vinay Krishnarao. *Certain biochemical aberrations in polymorphonuclear leukocytes during arthritis.* Nagpur. Dr. N. Nath, Department of Biochemistry, Nagpur University, Nagpur.

Botany

1. Basu, Muktisadhan. *Genetic studies of some growth parameters in Jute (Corchorus olitorius L.).* Calcutta.

2. Bhowmick, Pradip Kr. *Studies on the plant growth substances in root nodules and nodule bacteria of some leguminous trees.* Burdwan. Prof. Pritisadhan Basu, Department of Botany, University of Burdwan, Burdwan.

3. Chattopadhyay, Sakuntala. *Studies on polyamines and ammonia assimilatory enzymes during germination and root nodule development of Phaseolus mungo L.* Calcutta.

4. Chawhan, Narendrasingh Jagannathsingh. *Contributions towards palaeocene flora from the intertrappean series of India.* Nagpur. Dr. M.T. Sheikh, Department of Botany, Institute of Science, Nagpur.

5. Hajra Molly. *Evaluation of radio protective nature of some chemicals and their role in the recovery from radiation damage in plant systems.* Calcutta.

6. Kar, Rup Kumar. *Studies in senescence and survival capacity upon desiccation of the submerged aquatic weed, Hydrilla verticillate (L.) Royle.* Burdwan. Prof. Monojit Acharyya Choudhuri, Department of Botany, University of Burdwan, Burdwan.

7. Kolhe, Shaila Namdeo. *Effect of physical mutagens on some of the members of Umbelliferae.* Nagpur. Prof. P.K. Deshpande, Department of Botany, Nagpur University, Nagpur.

8. Kundu, Ruma. *An investigation of various cytological techniques in delineating the cell and chromosome behaviour in Characeae.* Calcutta.

9. Lal, Girijashankar. *Genetic analysis of quantitative characters in Triticum durum.* Devi Ahilya. Dr. Y.M. Upadhyaya, 68 Prakash Nagar, Indore.

10. Madhab Guru, Kishore. *An investigation into the biology of mycorrhiza associated with Pinus roxburghii under Orissa condition.* Sambalpur. Dr. Gorachand Rath, Prof., Department of Plant Pathology, College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneswar.

11. Mahmood, S.K. *Microbial ecology of rhizosphere and nonrhizosphere soils of Alternanthera sessilis and A. pungens (Amaranthaceae).* Osmania.

12 Manoj Kumar. *Biodeterioration of plywood by microfungi.* Magadh.

13. Mohammad Ali. *Evaluation of aquatic flora in the ponds of Nalanda District assessing the variability induced by sewage pollution.* Magadh.

14. Naik, Poornima. *Comparative morphology and taxonomic value of foliar sclereids in a few taxa of angiosperms.* Bangalore. Dr. T. Ananda Rao, Karnataka Association for the Advancement of Science, Central College, Bangalore.

15. Nistala Padma. *Morphological and histochemical studies in Asteraceae.* Andhra.

16. Panchpatkar, Sushama. *Mycological production of proteins.* Ravishankar. Dr. S.S. Joshi, Department of Chemistry, Government Engineering College, Raipur and Dr. (Smt) S. Joshi, Department of Botany, Government Science College, Raipur.

17. Pravabati Devi, Sorokhaibam. *Studies on the nutritive value and anti-carcinogenic activity of bamboo shoot ferment.* Manipur. Prof. H. Tombi Singh, Department of Life Sciences, Manipur University, Imphal.

18. Pushap Lata. *Physiological and biochemical studies of in vitro growing shoot tips and histogenetic studies of some woody species.* Panjab.

19. Seetha Rama Prasad, Guttikonda. *Cytogenetical and biochemical studies of an inter specific hybrid in the genus Nicotiana (N. benthamiana Domin and N. tabacum L.) and transfer of caterpillar resistance.* Andhra.

20. Sengupta, Sunipa. *Effect of some diazotrophic bacterial isolates of phyllosphere origin on wheat plants.* Calcutta.

21. Sen, Manidipa. *Impact of environmental pollution on growth and metabolism of algae grown in mass culture by utilizing biogas waste.* Calcutta.

22. Sen, Saumitra. *Cytotoxic and histopathological effects of Piper betle L. varieties in combination with betel nut, lime and tobacco.* Calcutta.

23. **Sharma, Satyawati.** *Studies on Ricinues communis Linn and Morus alba Linn : An integrated approach to biomass utilization.* IIT Delhi. Prof. P. Vasudevan and Dr. (Mrs.) Mira Madan, Centre for Rural Development and Technology, Indian Institute of Technology, New Delhi.

24. Sri Rami Reddy, Donthireddy. *Studies on airborne bacteria at Visakhapatnam, A.P., India.* Andhra.

Zoology

1. Balagopalan Ayyar, Chitra. *Adrenal gonad relationship : A histophysiological study in feral blue rock pigeons. Columbia livia.* Baroda.

2. Bhat, K. Lakshmikantha. *Studies on zooplankton with special reference to biofouling from the offshore region of Arabian Sea.* Karnatak. Dr. A.B. Wagh, Head, Marine Corrosion and Materials Research Division, National Institute of Oceanography, Goa.

3. Bhola, Seema. *Observations on Helminth, parasitic in Gallus gallus domesticus in Jabalpur with special reference to histopathological studies.* Durgawati. Dr. O.N. Bharadwaj, Government Science College, Jabalpur.

4. Chaudhary, Ompal. *Biology and management of flat headed borer, Sphenoptera dadkhani Obenberger (Buprestidae : Coleoptera) on peach (Pruns persicae L).* PAU.

5. Datta, Deb Kumar. *Toxic effects of lead and cadmium on the digestive system and kidney of two Indian fresh water teleosts, Mystus vitnatus (Bloch) and Leheo rohita (Hamilton).* Burdwan. Dr. Gour Mohan Sinha, Reader, Department of Zoology, University of Burdwan, Burdwan.

6 De, Dilip Kumar. *Studies on the food and feeding habit of Hilsa ilisha (Hamilton) of the Hooghly estuarine system and some aspects of its biology.* Calcutta.

7. Deo, Hrudaya Mohan. *Seasonal variation in haematological responses of a tropical anuran (Bufo melanostictus Bloch and Schneider).* Sambalpur. Prof. A. Mitra, Department of Life Sciences, Sambalpur University, Burla.

8. Goswami, Nemai Chandra. *Biochemical and histological changes of drug induced rat liver.* Burdwan. Prof. Subrata Roy, Department of Zoology, University of Burdwan, Burdwan and Prof. Chittaranjan Maity, Department of Biochemistry, Burdwan Medical College, Burdwan.

9. John, M.V. *Studies on pentastomids.* Kerala. Dr. N.M. Antony, Director, Research Division, Mar Ivanios College, Trivandrum.

10. Khatoon, Shaheda. *Studies on the behaviour of chromosomes during spermatogenesis in five species of Coleoptera (Insecta)* Ravishankar. Dr. N. Ghosh, Department of Zoology, Government Science College, Raipur.

11. Krishnayya, D. *On some aspects of serum biochemical changes in Tropidonotus piscator due to Tanqua tiara (Linstow, 1879)* infection. Osmania.

12. Kundu, Krishna. *Studies on some Acuariid parasites (Nematoda : Acuariidae) from birds of West Bengal.* Burdwan. Dr. Anadi Prasad Nandi, Reader, Department of Zoology, University of Burdwan, Burdwan.

13. Mahapatra, Anup Kr. *Biology, bioenergetics and phenology of Argina cribraria Clerck (Lepidoptera : Arctiidae)* Burdwan. Dr. Taracharan Banerjee, Reader, Department of Zoology, University of Burdwan, Burdwan.

14. **Mathai, Sam.** *Effects of hormones and hormone analogues on the ovarian development and vitellogenesis in the paddy pest Spodoptera mauritia Boisd (Lepidoptera : Noctuidae).* Calicut. Dr. V S. Krishnan Nair, Reader, Department of Zoology, University of Calicut, Calicut.

15. **Ramamani, M.** *Aspects of biology of spoilage and deterioration during storage of fish and fish products.* Osmania.

16. Ray, Manidip. *Studies on the surface ultrastructures and some biochemical aspects of two intestinal Nematodes.* Burdwan. Prof. Giridhari Majumdar, Department of Zoology, University of Burdwan, Burdwan.

17. Ray, Santanu. *Ecology of littoral larval Dipterans Arthropoda : Insecta) of the mangrove ecosystem of Sundarbans, India.* Calcutta.

18. **Singh, N. Ibotombi.** *Structure and behaviour of meiotic prophase chromosomes in Indian silkworms, Antheraea and Philosamia species.* Manipur. Dr. S.C. Kundu, Assoc. Prof., Department of Life Sciences, Manipur University, Imphal.

19. Swarndeep Singh. *Effect of hormones on ovarian morphology and lipid biochemistry in house rat, Rattus rattus.* PAU.

20. Watkar, Ganesh Ravichandra. *Mucosubstances in the reproductive tract of two Indian bats.* Nagpur. Dr. M.M. Gadegone, Department of Zoology, Institute of Science, Nagpur.

Medical Sciences

1. Ghosh, Jayasri. *Studies on the role of vitamins in tumour genesis and prevention of cancer.* Calcutta.

2. Pathak, Dharam Pal. *Reactions of arylnitroso and N-Nitrosamines with 1, 1' diacety l-1, 1', 4, 4'—Tetrahydro-4, 4'—bipyridine (DTB) : An in vitro NAD(P)H and acetyl-coa model.* Panjab.

3. Shivashankar, N. *Central auditory evaluation in post traumatic syndrome.* Bangalore. Dr. G.N. Narayana Reddy, Director, NIMHANS, Bangalore.

Agriculture

1. Devendra Prasad. *The economy of fertilizers in intercropping of sugarcane and tobacco.* Rajendra Agrl.

2. Gupta, Suresh Chandra. *Bionomics of sugarcane top borrer, Scirpophage excerptalis Wlk, in relation to host reaction and fertilizer insecticide application.* Rajendra Agrl.

3. Kalita, Prasanta. *Studies on the effect of nitrogen and phosphorus application with and without FYM on late sown rainfed wheat.* HP Krishi. Dr. R.C. Thakur, Department of Agronomy and Agrometeorology, College of Agriculture, Palampur.

4. Thakur, Surendra. *Effect of different growth regulators on bearing of litchi (Litchi chinensis Sonn).* Rajendra Agrl.

5. Tiwary, Awadh. *A study in agricultural geography.* Magadh.

6. Tomizuddin Ahmed. *Diversity, genetic associations and breeding potentiality of glutinous rice.* Assam Agrl. Dr. G R. Das, Chief Scientist, Regional Agricultural Research Station, Karimganj.

Animal Husbandry

1. Das, Prafulla Kumar.' *Studies on stephanophilarial dermatitis in cattle.* OUAT. Dr. S.B. Tripathy, Prof. and Head, Department of Medicine, College of Veterinary Science and Animal Husbandry, Bhubaneswar.

2. Mahmood Alam. *Pharmacokinetics of ampicillin in buffalo calves, goats and poultry.* Birsa Agrl.

3. Pandey, Sachidanand. *Pharmacokinetics of mebendazole buffalo calves, goat and poultry.* Birsa Agrl.

4. Sinha, Kameshwar Prasad. *Pharmacological and toxicological screening of karanj.* Birsa Agrl.

INSTITUTE OF MICROBIAL TECHNOLOGY

(COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH)

Advertisement No 6/88

The Institute of Microbial Technology, Chandigarh has been identified as one of the Distributed Information Centres (DICs) on Bioinformatics as a part of National Bioinformation Network. The principal objective of this Centre is to have ready access to computer based information on resources and databases in specialized fields related to biotechnology for retrieval and dissemination. The facility is funded by the Department of Biotechnology and the posts advertised here are temporary but likely to continue. Pay and allowances are as per Central Government rates.

Applications in the prescribed forms are invited for the following posts :

(1) **Scientist 'F'** — One Post
(Biochemical Engineer)
Pay Scale : (Rs. 5100-150-5700-200-6300)

Qualifications : High academic qualifications with 1st Class M. Tech. or doctorate degree in the field of biochemical/chemical engineering. Should have an established reputation based on not less than ten years of research experience.

Job Requirements : The incumbent will be required to provide high level leadership in planning and guiding research in the field of biochemical/chemical engineering with a view to evolve viable microbial technologies based on newly constructed microbial strains with certain novel capabilities He will have to co-ordinate the work of other core groups and assist in solving problems of growth, expression and excretion—if necessary design novel bioreactor with versatile capabilities. He would be expected to help in the design and building of a very functional and efficient pilot plant building and order necessary equipment. He would also be expected to assist the Director in day to day administration as and when required.

Age : Preferably below 50 years, relaxable in deserving cases.

(2) **Scientist 'E'** -- One Post
Group IV (3)
Scale of Pay (Rs. 3700-125-4700-150 5000)

Essential Qualifications

A Ph.D. degree in physical or life sciences or information science with at least 12 years of research experience after obtaining M.Sc. degree. Evidence of ability to shoulder responsibilities such as planning and execution of the activities related to DIC.

Desirable

Familarity and working experience with modern computers and computation techniques used in biological research, information science or related field. The position is at a senior level and the incumbent will be responsible to plan, execute and control overall activities of the centre. He will have to supervise a team which is involved in database *management* and *development* of related software packages. Only those who have proof of such capacity *are likely to be considered*.

Age : Not exceeding 40 years as on **1-11-1988**.

(3) **Technical Officer 'B'** : Two Posts
Gr. IV (1)

(Reserved for SC) If no SC candidate found suitable selection will be made from General Category.

Gr. Rs. 2200-75-2800-EB-100-4000)

Qualifications and Experience

Essential : A first class B.E. or equivalent in Mechanical/Electrical engineering.

Desirable : Some experience in the field of operation and maintenance of services with particular reference to the application of computer techniques in these areas.

Job requirements : To carry out the following in round the clock shifts.

(a) to man and operate a computerised central monitoring system;

(b) to assist in the supervision of operation round the clock of services *such as power*, *emergency* power, water liquid N^2 steam; central compressed air *and vaccum systems, central* airconditioning (including cold and hot rooms) communication *systems etc*;

(c) to assist in the planning and operation of a preventive and break-down maintenance system for services and facilities such as those listed at (b) above as well as for other similar infrastructual facilities in the Laboratory;

(d) to assist in the planning and operation of a stores inventory control system for spares for services and facilities mentioned above.

(e) to carry out other related duties as any be assigned from time to time.

Age : *Not exceeding 30 years as on* 1st November, 1988.

General Conditions

Persons working in Govt. Deptt./Undertaking/Autonomous bodies should send their application through proper channel. **The number of vacancies mentioned may vary at the time of selection.** Application forms can be had free of cost from the Administrative Officer, Institute of Microbial Technology, House No. 244, Sector 35A, Chandigarh upto **25th November, 1988**. Number of advertisement, name of the post applied for and full address in block letters must be *indicated at the top of the* request which should be sent together with a self-addressed and stamped for Rs. 1.40 *envelope of 22 cm x 10 cm size* for obtaining the application form. Complete application in the prescribed *form together with non-refundable* application fee of Rs. 8/- (No fee in case of SC/ST candidate) in the form of *crossed Indian Postal Order drawn in* favour of the Director, Institute of Microbial Technology, Chandigarh alongwith attested copies of the testimonials certificates should reach the Director, Institute of Microbial Technology, House No. 1389, Sector 33C, Chandigarh latest by **15-12-1988**.

Requirement of experience and age may be relaxed at the discretion of the Selection Committee in the case of candidates found otherwise suitable.

Since it is not possible to call all the *candidates for interview test the* application will be short listed for the purpose and the decision of a duly constituted Screening Committee of the *Institute will be final*.

"Interim enquiries will not be attended to."

UNIVERSITY OF ALLAHABAD

The last date for submitting applications for teaching posts against advertisement Nos. 6/88 and 7/88 has been further extended upto 2nd November, 1988.

A.B. Singh
REGISTRAR

Printed & Published by SUTINDER SINGH, *on behalf of the Association of Indian Universities*, AIU House, 16 Kotla Marg, New Delhi-110002. Grams : ASINDU. Phones : 3315105, 3313390, 3312305, 3310059 and 3312429 Telex 31 66180 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055. Tel. 529157